North Carolina Department of Transportation Complete Streets Implementation Guide

The North Carolina Department of Transportation (NCDOT) Complete Streets Implementation Guide (Guide) is designed to assist NCDOT staff engineers, project managers and designers in implementing the Complete Streets Policy as adopted by the NCDOT Board of Transportation. This document provides comprehensive guidance for incorporating a Complete Streets approach into NCDOT's planning, programming, design, and maintenance processes.

Elements of this Guide:

1. **Complete Streets Project Evaluation Methodology**
2. **Planning**
3. **Project Development**
4. **Resurfacing and Maintenance Activities**
5. **Work Zone Accommodations**
6. **Related Policies**
7. **Cost Share**
8. **Design Guidance**
9. **Administration**

This Guide will be updated periodically as processes and procedures are refined, with a comprehensive review and update every five years, beginning in August 2024.

1. Complete Streets Project Evaluation Methodology

All projects will be evaluated using the Complete Streets project evaluation methodology attached and referenced herein. The five-step evaluation methodology will assist project managers and engineers in identifying bicycle and pedestrian needs, selecting the appropriate facility type, and estimating added impacts to the project.

2. Planning

This section outlines the approach for ensuring Complete Streets elements are evaluated as a roadway project is planned, prioritized and programmed. Each proposed roadway project will include the preparation of a Complete Streets Project Sheet as detailed below. The Project Sheet will identify planned multi-modal facilities and document facility selection decisions in the course of project development.

2.1 Adopted Plans

A Comprehensive Transportation Plan (CTP) is a mutually adopted transportation planning document that identifies the multi-modal transportation needs of a community or jurisdiction. The CTP may include and/or reference locally adopted plans for public transportation, bicycle facilities, pedestrian facilities and greenways. The adopted CTP will be considered the controlling plan for the identification of non-motorized facilities to be evaluated as part of a roadway project. Other locally adopted plans will be considered so long as 1) the planned facility addresses a transportation need and 2) the planned facility meets the design guidance standards referenced in Section 8.

2.2 Complete Streets Project Sheet (Prioritization 6.0)

For projects where a project sheet has yet to be developed as part of the CTP process, a Complete Streets Project Sheet will be used to document the types of pedestrian, bicycle, public transit, and other multimodal facilities to be evaluated in each roadway project. This sheet will be submitted during the Strategic Prioritization submittal process. The Complete Streets Project Sheet will carry forward as a key document in the Project Advancing Transportation through Linkages, Automation, and Screening (ATLAS) workbench, allowing any personnel to access the project later in development.

2.3 Complete Streets Project Sheet (within the CTP)

Comprehensive Transportation Plans (CTP) developed through NCDOT's Transportation Planning Division identify projects to address network deficiencies for motorists, pedestrians, bicyclists, and transit users. Complete Streets Project Sheets are being introduced into the revised CTP process. The Project Sheet outlines the recommended improvement, proposes a typical cross-section for roadway projects, explains the identified need for the project, provides current and projected traffic volume and capacity, identifies high-level environmental constraints and provides Complete Street recommendations. These sheets lay the foundation for Complete Streets facilities and serve as a starting point for projects selected for Strategic Prioritization submittal and carry forward as a key document in the project development phase. The information and data points within the Project Sheets may be considered for decision-making within Steps 1 -3 of the Complete Streets Evaluation Methodology Guidance.

2.4 Exceptions to Policy

The Complete Streets Project Sheet will document the outcomes of the Complete Streets Evaluation Methodology Guidance (i.e. Steps 1-5), alternative evaluation criteria, and decisions on project inclusion from the Complete Streets Review Team (i.e. "exceptions"). Exceptions may be requested after the Project Engineer has documented the decisions reached under the Complete Streets Evaluation Methodology Guidance and indicated the Step where a decision of excluding a Complete Street facility(ies) was reached. This request may be considered any time throughout the process through the

Complete Streets Program Administrator in the Integrated Mobility Division.

A multi-disciplinary Complete Streets Review Team will review all requests for exceptions to the Complete Streets Policy. The Review Team will consider the justification for the proposed exception as detailed on the Complete Streets Project Sheet and within the Complete Streets Evaluation Methodology Guidance and decide whether to recommend approval of the exception. Exceptions will be automatically granted if requested by the local government.

If the exception is not approved, the Review Team will initiate additional discussion with relevant parties, including the Project Manager, to explore options and alternatives for including appropriate multi-modal elements in the project such as consideration of additional alternative facility elements or design concepts, increased local cost share, and/or an alternative plan for add the enhancements through other methods or projects. If necessary, the decision will be elevated to the Chief Operating Officer and/or Secretary for a final decision.

The Complete Streets Review Team consists of:

- Complete Streets Program Administrator,
- State Traffic Engineer or designee,
- State Roadway Engineer or designee,
- Integrated Mobility Division Director or designee, and
- Division Planning Engineer/Corridor Development Engineer or designee.

3. Project Development

The Project Development Network (PDN) carries a project from concept to the specific roadway design to be constructed. The PDN process considers the context, constraints and purpose of a project. All planned facilities will receive the same consideration as a project moves through the development process.

The Complete Streets Project Sheet will carry forward with a project through the PDN stages. Project managers will use the Complete Streets Project Sheet in PDN Stage 1 for determining facilities to be included in preliminary project design alternatives. Information within the Complete Streets Project Sheet may be revised, verified, or revisited in PDN Stage 2 depending on new analyses, data availability, etc.

The Complete Streets Project Sheet will be a ‘key document’ in the Project Advancing Transportation through Linkages, Automation, and Screening (ATLAS) workbench, allowing all personnel working on the project throughout the development process to refer to the information. Project ATLAS features a workbench tool to organize technical reports and data needed during project delivery. As part of the Workbench structure, the Project Manager will be responsible for documenting how Complete Street elements are reflected in the project design.

3.1 Project Development

The Project Engineer will coordinate with NCDOT’s Integrated Mobility Division (IMD) on all programmed roadway projects. The Integrated Mobility Division will participate in scoping meetings and respond to Project Engineer requests for guidance on facility recommendations and design guidance as appropriate. Project Engineers should refer to the steps identified in the Complete Streets Evaluation Methodology

Guidance for identifying and incorporation Complete Streets elements.

3.2 Bridge Projects

The Complete Streets Project Sheet will be integrated into the Structures Management Planning Process for bridge replacements and refurbishments. Until specific procedures are complete, the Project Engineer will coordinate with the Integrated Mobility Division through scoping requests to incorporate Complete Streets elements in bridge designs for each bridge replacement project undertaken by NCDOT.

For bridge projects where a present transportation need has been identified:

- Pedestrian facilities will be included if there is a present identified pedestrian transportation need.
- Bicycle facilities will be included if there is a present identified bicycle transportation need.
- Multi-use facilities will be included if there is a present identified multi-use transportation need.

Due to the long useful life of bridges, on bridges with shoulder approach sections, where:

- There is a reasonable expectation of future pedestrian need, sufficient deck space and weight capacity will be made available on the replacement bridge for future construction of sidewalks.
- There is a reasonable expectation of future bicycle need, sufficient width and weight capacity for bike facilities will be provided.
- There is a reasonable expectation of future multi-use need, sufficient width and weight capacity for the appropriate facility will be provided on and/or below the structure.

3.3 Equal or Better Performance of a Facility and Alternative Facilities

Conditions often change between the time a project is added to the STIP and the when the project development process begins that may support the incorporation of a different type of bicycle or pedestrian improvement than shown in an adopted plan. NCDOT will review an alternative facility(ies) to the bicycle and/or pedestrian facility type proposed in the adopted plan based upon the evaluations and decisions reached within the Complete Streets Evaluation Methodology Guidance or upon the written request of the local representatives to the Project Engineer.[1] The Project Engineer will document the evaluation of the alternative facility(ies) and consult with the Complete Streets Program Administrator for additional guidance as needed. The facility decision documentation will be incorporated in ATLAS or a relevant NCDOT project tracking mechanism in coordination with IMD. If there are considerable cost and or schedule impacts that cannot be resolved through selection of an alternative facility, the Project Engineer should submit a project request to the Complete Streets Review Team as identified in Step 5 – Final Analysis of the Complete Streets Evaluation Methodology Guidance.

4. Resurfacing and Maintenance Activities

[1] Table 3 within the Complete Streets Evaluation Methodology Guidance includes pedestrian and bicycle facilities and other roadway improvements that can accommodate those users based upon roadway configuration, operational speeds, demand level, and vehicle volumes.

4.1 Scheduled Resurfacing

Each year, a county-level resurfacing schedule is developed within each NCDOT Division. NCDOT Division staff will meet with local agencies to review the scheduled roadways and identify locations to evaluate Complete Streets improvements. These may include striping, markings and associated signage.

The following process will be followed to review resurfacing projects for complete street improvements:

- The Operations Program Management Unit will coordinate with the Integrated Mobility Division to identify planned facilities within the project limits suitable for implementation in conjunction with maintenance activities.
- Identified locations for Complete Streets improvements will be noted on a resurfacing list distributed to each unit of local government.
- The local government concurrence with recommended Complete Streets improvements will be provided to the local NCDOT Division in writing.
- Completed improvements will be incorporated into the Pedestrian and Bicycle Infrastructure Network (PBIN) and ATLAS upon completion.

4.2 Addition of Rumble Strips/Stripes

Rumble strips/stripes are recognized as a safety countermeasure to reduce lane departure motor vehicle crashes. Rumble strips/stripes, raised traffic bars, asphalt or concrete dikes, reflectors and other such surface alterations where installed on roadways without full access control will be placed in a manner as not to present hazards to bicyclists or interfere with existing on-road bicycle facilities.

Rumble strips/stripes will not be extended across the shoulder of the roadway or other areas intended for bicycle travel. For shoulders suitable for bicycle use, refer to the authoritative design references outlined in Section 8 of this Guide. The Mobility & Safety Division in coordination with the Integrated Mobility Division will evaluate situations on a case by case basis where rumble strips/stripes recommended for safety may conflict with bicycle travel.

5. Work Zone Accommodations

The continuity of existing bicycle and pedestrian facilities will be maintained during construction and maintenance activities. During the construction phase of a roadway project, NCDOT's Guidelines for the Level of Pedestrian Accommodation in Work Zones will be followed.

6. Policy References

6.1 Eliminated Polices

The following policy documents are superseded by the Complete Streets Policy (2019):

- *Complete Streets Policy* (2009) and *Complete Streets Planning and Design Guidelines* (2012)
- *Bicycle Policy* (2009, update)
- *Pedestrian Policy Guidelines* (2001)
- *Administrative Action to Include Local Adopted Greenway Plans in the NCDOT Highway Planning Process* (1994)

6.2 Related Policies

The NCDOT Roadway Design Manual (RDM) includes policies for bicycle and pedestrian facilities in addition to design specifications. The following policy documents include elements related to Complete Streets implementation:

- *Traditional Neighborhood Development Manual* (2000).
- *Bridge Policy* (2000).
- *Policy on Street and Driveway Access to North Carolina Highways* (2003).
- *Exceptions to Maintenance Responsibilities on State Highway System Streets in Municipalities* (2003).
- *Guidelines for Inclusion of Greenway Accommodation Underneath a Bridge as Part of a NCDOT Project* (2015).
- *Subdivision Roads: Minimum Construction Standards* (2016).

7. Cost Share

7.1 Complete Street Cost Share

The table below illustrates the funding responsibilities for Complete Streets incorporating bicycle and pedestrian and public transportation facilities.

Complete Street Cost Share			
Facility Type	**In Plan and Need Identified Through Evaluation Process**	**Not in Plan, but Need Identified**	**Betterment**
Pedestrian Facility	NCDOT pays full	Cost Share	Local
On Road Bicycle Facility	NCDOT pays full	NCDOT pays full	Local
Shared-use Path/Sidepath	NCDOT pays full	Cost Share	Local
Separated Bicycle Facility	NCDOT pays full	Cost Share	Local
Greenway Crossing	NCDOT pays full	Cost Share	Local
Transit Facilities*	NCDOT pays full	Cost Share	Local

NCDOT will pay the full cost of bicycle and pedestrian enhancements when in a qualifying Plan – either directly or by reference as described in Section 1.1 – and the need for the enhancement is identified through the Complete Streets evaluation process. Facilities will be designed based on the authoritative design references outlined in Section 8 of this Guide and will be informed by the Complete Streets Evaluation Methodology Guidance. NCDOT will fully fund the cost of designing, acquiring right of way, and constructing facilities, not including elements identified as betterments as defined in Section 7.3 and those instances where the Local Government Agency (LGA) has increased its cost share participation.

NCDOT is responsible for the full cost of bridge replacements and bridge widenings, including approved pedestrian and bicycle facilities on the structure. Bridges will not be included in the total project construction cost for cost-sharing purposes.

7.2 Cost Share Formula

Bicycle and pedestrian facilities incidental to a roadway project where a need has been identified through the project scoping process but not identified in an adopted plan may be included in the project. Inclusion of these incidental facilities requires the local jurisdiction to share the incremental cost of constructing the identified improvements, based on the population thresholds below.

Cost Share Formula		
Jurisdiction Population*	**Cost Participation**	
	NCDOT	**Local**
> 100,000	80%	20%
50,000 to 100,000	85%	15%
10,000 to 50,000	90%	10%
< 10,000	95%	5%
**For counties, the non-municipal county population, OSBM*		

NCDOT will estimate the incremental cost of proposed improvements. The percentage of the total cost share for these improvements will be set according to the population of the jurisdiction in the most recent annual certified estimate of population as determined by the state demographer, and executed through a local agreement.

7.3 Betterment

A roadway project betterment is defined as:

- A requested bicycle, pedestrian or public transportation improvement that exceeds the recommendations appearing in an adopted plan and/or exceeds the needs identified through the project development process; or
- Aesthetic materials and treatments, if this cost is determined to exceed the cost of standard construction materials; or
- Landscaping in excess of standard treatments as defined by NCDOT Roadside Aesthetics Policy; or
- Lighting in excess of standard treatments as defined by NCDOT lighting policy.

The additional costs associated with inclusion of these elements in a roadway project are the responsibility of the local jurisdiction, executed through a local agreement.

7.4 Maintenance

A local maintenance agreement will be executed within the timeframe identified in the PDN for all separated bicycle and pedestrian improvements (e.g., sidewalk or shared-use path) inside or outside a municipal boundary. In the event an agreement cannot be reached, the next highest non-separated facility type will be evaluated for inclusion in the project. Exceptions may be made on a case-by-case basis and NCDOT may agree to maintain separated facilities when a maintenance agreement is not in place in unique project areas of high pedestrian/bicycle demand or high risk related to crossing distance

or other conditions.

8. Design Guidance

The NCDOT **Roadway Design Manual** will serve as the authoritative reference for Complete Streets design. Cross-sections from the Manual will be used in each stage of project planning, prioritization and development.

American Association of State Highway Transportation Officials (**AASHTO**) guides will serve as authoritative references for street design and will be used in coordination with the NCDOT Roadway Design Manual.

National Association of City Transportation Officials (**NACTO**) guides will serve as supplemental references for street design and will be used in coordination with the NCDOT Roadway Design Manual and AASHTO guides, including—but not limited to--guidance on bikeways, transit, intersections, and urban street design.

The Federal Highway Administration (**FHWA**) provides supplemental guidance on selecting appropriate bicycle and pedestrian facilities. These include guides on countermeasures, bikeways, raised medians and other facilities.

9. Administration of the Policy

The Complete Streets Core Technical Team (CTT) will meet quarterly to oversee the implementation of Complete Streets. The primary role of the CTT will be to review and maintain the Implementation Guide, recommend updates and process improvements and establish performance metrics for implementation. The CTT will direct the implementation of recommendations contained within the NCDOT Complete Streets 2.0 Recommendations document.

The CTT is comprised of representatives of the following units:

- ADA/Title VI Office
- Integrated Mobility Division
- Chief Deputy Secretary's Office
- Division of Highways
- Environmental Policy Unit
- Mobility & Safety
- Planning & Programming
- Rail Division
- Roadway Design Unit
- Technical Services
- Transportation Planning Division